UNIVERSITY INSTITUTE OF TECHNOLOGY

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA
BHOPAL(M.P.)

A
MAJOR PROJECT ON

"WORDLINE – OBJECT COMPARISON"

UNDERTAKEN AT
ZEST SOFTECH PVT. LTD.
BHOPAL

SUBMITTED BY

MOHAMMAD AJMAL SIDDIQUI
(0101CA193D13)

SUBMITTED TO

DEPARTMENT OF COMPUTER APPLICATION
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PARTIAL FULFILLMENT OF MAJOR PROJECT FOR THE AWARD OF
MASTER OF COMPUTER APPLICATION

OF
RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA
BHOPAL(M.P.)

JAN-JUNE 2021

ZEST SOFTECH PRIVATE LTD.
Software Solutions - Networking - Project Management & Consultancy

32-B, Rishikesh Vihar, Bagh Mugalia, Bhopal – 462043
Tel: 8959901904, email: zestsoftech@yahoo.co.in,
www.zestsoftech.page.tl, CIN:U72200MP2006PTC018362

Ref: ZSPL/Intern/2020-21/06

21st July, 2021

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Mr. Ajmal Siddiqui, student of MCA (Computer Science) of University Institute of Technology, RGPV, M.P., has undergone internship in our organisation from 01/03/2021 to 31/07/2021. During his internship at Zest Softech Pvt. Ltd. Ajmal was assigned software development, testing and design work in various technologies including (and not limited to) PHP, SQL, GoLang, Laravel, Docker, IPFS, Elasticsearch, ReactJS, Python, Java, Android SDK, Linux/Unix, GIT, CI/CD, Machine Learning, MQTT, RabbitMQ etc, under the guidance of the Project Manager (Software).

We are satisfied with his performance and conduct during this period of engagement. You may suitably reward Ajmal on his successful completion of his internship project. We wish him all the best for his future endeavours.

For Zest Softech Pvt. Ltd.

(Shikhar Mall)

Authorized Signatory

UNIVERSITY INSTITUTE OF TECHNOLOGY

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA
BHOPAL(M.P.)

CERTIFICATE

This is to certify that project titled **Wordline – Object Comparison** submitted by **MOHAMMAD AJMAL SIDDIQUI** is partial fulfillment of the requirement for the award of degree of **MASTER OF COMPUTER APPLICATION (MCA)** of **UNIVERSITY INSTITUTE OF TECHNOLOGY, RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA BHOPAL (M.P.)** and is bonafied record of the work done by him at **ZEST SOFTECH PVT. LTD. BHOPAL.**

Dr. Ravindra Patel
Professor & Head of the Department
Master of Computer Application
UIT-RGPV, BHOPAL

Dr. S. S. Bhadauria
(Director)
UIT-RGPV, BHOPAL

UNIVERSITY INSTITUTE OF TECHNOLOGY

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA
BHOPAL(M.P.)

DECLARATION

I **MOHAMMAD AJMAL SIDDIQUI**, student of Master of Computer Application, Dept. of Computer Application, **UIT-RGPV, BHOPAL(M.P.)** hereby declare that the work presented in this major project is outcome of our own work, is bonafied, correct to the best of our knowledge and this work has been carried out taking care of MCA Ethics. The work presented does not infringe any patented work and has been submitted to **UIT-RGPV, BHOPAL** for the award of **MCA degree.**

MOHAMMAD AJMAL SIDDIQUI
(0101CA193D13)

UNIVERSITY INSTITUTE OF TECHNOLOGY

RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA
BHOPAL(M.P.)

CERTIFICATE OF APPROVAL

The foregoing dissertation work of **MOHAMMAD AJMAL SIDDIQUI** student of **Master of Computer Applications** from **UNIVERSITY INSTITUTE OF TECHNOLOGY, RGPV-BHOPAL**, hereby approved as a creditable study of a Computer Application subject carried out and presented in a master satisfactory to warrant its acceptance as a prerequisite to the degree for which it has been submitted. It is understood that by this approval the undersigned or conclusion drawn there in but approve the dissertation only for the purpose for which it has been submitted.

……. **…….**

(Internal Examiner) **(External Examiner)**

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MOHAMMAD AJMAL SIDDIQUI
(0101CA193D13)

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CHAPTER-1

COMPANY PROFILE

Zest Softech PVT. LTD.

Founded by a group of technocrats and management experts, they have been committed to the cause of providing high quality networking solutions, educational tools, software solutions, project management and consultancy services to our esteemed clientele in India and overseas.

Expertise in Systems Development Life Cycle, Software and System Solutions, Networking, Internet-Intranet-Extranet Solutions, Management Consultancy, Corporate Training in IT field is our strength.

I am working as software engineer trainee, and they provided me so much real world experience and giving me opportunities to grow in IT field.

Our project management expertise is in System Development Life Cycle, Software and system solutions, Networking, Internet-Intranet-Extranet Solutions, Management Consultancy, Academic and Corporate Training in It field is our strength.

We strongly believe if the Technology, is properly understood, could be the tough test of arts to master and yet, if properly demystified and applied, can unfold a whole 'New World' of endless possibilities. This is exactly where we step in with our experience, approach, and commitment. Emancipating the technology from the shackles of the ubiquitous jargon and making it work for an with end-user, is the crux of our existence. It also sums up our approach to business.

Irrespective of the nature of tasks we undertake, our efforts are focused on just one goal, always – understanding our Client. We believe in "Total Solution", "Customer Satisfaction", and "Unique Customer experience".

ZEST MISSION

To develop user friendly & highly effective solutions for our clients with the help of our experience & expertise, in order to make ZEST synonymous with VALUE, QUALITY,TRUST & COMMITMENT.

ZEST VISION

To become a globally recognized and respected company providing immaculate technology-based service and solution and solutions for your bus.

ZEST SERVICES

Consulting

- Project Consulting.
- Software Consulting.
- E-Governance Consulting.
- Public/Private Consulting.
- Agriculture Consulting.
- Rural Livelihood Consulting.

Implementation

- Hard Desk.
- System Integration.
- Software Development.
- Enterprise Business Solution.

Management

- Managed Operations.
- Faculty Management.
- Project Management .
- Public/Private Management.

Support

- Hardware & Network Maintenance.
- Application Maintenance.
- Micro HIMS.
- Materials Management.
- Laboratory Information System.

CHAPTER-2

INTRODUCTION OF WORDLINE

2.1 ABSTRACT:

Wordline website provides a simple interface for maintenance of student–faculty information. It will be used by Wordline to maintain the records of students, trainers and faculties easily. The creation and management of accurate, update information regarding an user. Wordline website deals with all kind of user details, course details, curriculum, batch details, placement details and other resource related details too. It tracks all the details of a student from the day one to the end of the course which can be used for all reporting, tracking of attendance, progress in the course, completed semesters, upcoming semester year curriculum details, exam details, project or any other assignment details, final exam result and all these will be available through a secure, online interface embedded in the college's site. It will also have faculty details, batch execution details, students' details in all aspects, the various academic notifications to the staff and students updated by the Wordline institute administration.

An abstract is an abbreviated version of your major project final report. The major project abstract appears at the beginning of the report as well as on your display board. We are also say that abstract is a summarization of project. Which define about the your project work , functionality and how to perform action by your project. With the help of abstract report we are describe about the which action you perform by your project.

Your major project abstract lets people quickly determine if they want to read the entire report. Consequently, at least ten times as many people will read your abstract as any other part of your work. It's like an advertisement for what you've done. If you want judges and the public to be excited about your major project, then write an exciting, engaging abstract! Since an abstract is so short, each section is usually only one or two sentences long. Consequently, every word is important to conveying your message. If a word is boring or vague, refer to a thesaurus and find a better one! If a word is not adding something important, cut it! But, even with the abstract's brief length, don't be afraid to reinforce a key point by stating it in more than one way or referring to it in more than one section.

We are developing a live project on Wordline portal. This project is based on MVC architecture. Means it is just like a website of Wordline. Wordline portal provide an online facilities for users (employees or students) .So user easily use the portal in anywhere. Wordline portal is combination of each module such as administrative department, registration and login department, account department, Study material – test results etc related modules.

The administrative department maintains and control other departments. It is a head of other departments. The user and employee registration and login department is used for create user account and user registration in Wordline portal. The account department handle fees of students and salary of employees. It is also manage balance sheet, profit and loss of institution. We are also including a department which provide a study material, monthly test results service for students. This is managing by the Study material and test results department.

2.2 INTRODUCTION:

The **"Wordline website"** is a client-server based portal. Which is based on managing the records of an institute and managing the records of all the students , trainers and other faculties. The first activity is based on registration of students, faculties, and trainers as soon as their admission is done. A unique register number is given to that particular for his identification. The **Wordline website** also maintains the classes details, about the provided subjects, student reviews and enquiry form for user.

The second activity is based on managing the institute. The **Wordline website** keeps the record of the fee payment done by each student , salary pay to trainers and employees. It also calculates the salary to be paid to each staff members or lecturers. The money to be spent for the development of the institute can be maintained.

Admin has the authority to add details. And he also has the right to edit or delete those information to/from the list. Admin provides a unique username and password for each employee through which he can login. All the information's are being saved in the database. Admin have a many more controls in own hand. Admin is able to fetch or delete a record of any student, faculty or trainer. The **"Wordline website"** is also provide the online courses , about the the institution , contact details , video lectures etc.

The impact of computers on our lives today is probably much more than we are actually known to. Getting good information and transforming it quickly into products than consumers want to buy is the essential key to staying in business and this all is done now a days using Computers and Application Software. **Wordline website** defines as an application (more likely web-based), that provides capabilities for multiple users with different permission levels to manage (all or a section of) content, data or information of a website project, or internet / application. The software helps Managers to plan and control the organizational operations and to respond to changing market conditions. It provides a regular flow of information for managerial decision-making and control.

We developed a live project on **Wordline**. This project is based on MVC architecture. Means it is just like a website of Wordline institution.

Wordline portal provide an online facilities for users(employees or students). So user easily use the portal in anywhere. Wordline portal is combination of each module such as administrative department, registration and login department, account department, study material – test results etc related modules.

The administration department maintain and control an other departments. It is a head of other departments. The user and employee registration and login department is used for create user account and user registration in Wordline portal. The account department handle fees of students and salary of employees. It is also manage balance sheet, profit and loss of intuition. We are also including a department which provide a study material, monthly test results service for students . This is managing by the study material and test result department.

Modules provided by Wordline website :-

- Registration Form
- Login
- Logout
- Admin
- Instructor
- Student

Registration Form :-

Registration form give the help to register yourself and create account in Wordline Software. Three type of registration is provided by this website such as Admin registration, Student registration, Trainer registration. According to registered user give an authentication for privacy, access etc. After the registration user access a data from the Wordline Software website with the help of valid email id and password.

Login:-

After the registration Wordline website provide a user id and password. With the help of both of these user login in own user account.

Logout:-

This module allows the user to **Logout** the application. Further operations cannot be performed after user exits. After using the user account user logout from our user account which provide by Wordline website.

Administrator :-

Administrator handle an administration department of Wordline Software website. The admin work like a controller of entire website. Admin

responsible for the maintenance and supervision of the institution and separate from the faculty or academics, although some personnel may have joint responsibilities. Some type of separate administrative structure exists at almost all academic institutions, as fewer and fewer schools are governed by employees who are also involved in academic or scholarly work. Many senior administrators are academics who have advanced degrees and no longer teach or conduct research actively.

Services to/for Administrator:-

- Maintain pages(such as students, trainers & others)
- Uploading notes and software related to subjects/course

- Class details
- Contacts details of every user(such as student, trainer & others)
- Manages own and other users profiles

Responsibilities of Administrator:-

- Registration /Admission.
- Maintenance of official records;
- Maintenance and audit of financial flows and records;
- Safety and security of people;
- Maintenance
- Fundraising from private individuals and foundations ("development" or "advancement")
- Research administration (including grants and contract administration, and institutional compliance with federal and state regulations)
- Public affairs (including relations with the media, the community, and local, state, and federal governments)
- Student services such as disability services, career counseling and library staff.

Faculty:-

The role of a faculty is to develop a competency and skill sets in an individual to perform his/her effectively and efficiently in the work place. The trainer should communicate to the trainees about what is expected out of training in a simple and professional way.

Services to/for Faculty:-

- View students details
- Check status
- Slides & manuals
- Faculty profile
- Batch Scheduling

Responsibilities of Faculty:-

- Training plan
- Timing of different training sessions
- Choosing the relevant training methods
- Preparing the training materials and aids

- Conducting training sessions and
- Evaluating the post training session

Student:-

Student module is used by the registered students of Wordline Software institution. After the registration student gain user id and password. So with the help of these user id and password student user login in own account and use the different services of student user and give own opinion in form of review to institution website.

Services for Students:-

- Student view own profile
- Pay fees by net banking
- Give own review and opinion
- Download the notes related to subject/course
- Download the software's related to subject/course
- Enquiry

Enquiry Form:-

If any visitor want any enquiry about the Wordline Software institution so visitor fill the enquiry form and submit its and after sometime user receive a mail from the Wordline Software institution.

2.3 STUDENT MODULE

This Wordline portal divided in three modules Admin, Faculty and Student.

Our Student module works on an entirely different model. You don't need to install hardware and software, you don't manage backups, nothing like that. We manage all of that on our end. Simply connect via internet to your Wordline portal site. Login, and you are up and running.

To overcome the complexity of this environment and to manage its resources with optimal efficiency, institute Management need to have robust and integrated Student Management Module for their day operation.

Wordline Portal provides the online facility to student for enquiry for course with completion duration. Firstly Student will be registered on Wordline Portal From admin module and gets the login id and generate the Password. Student can Login with user id and password visit and use the Wordline portal, After Registration Student can login and reach on student home page.

Student Home page Display all the information Related to student ,Like student profile – student can click on student profile button and view his/her profile on his/her own desktop . Wordline portal provides the online payment facility to student .student can pay his fees easily with the help of internet banking, debit and credit card and paytm.

Student can enquiry related to course and new batch shedules related to course.

Wordline Portal provides the facility to student that student can view and download useful Software and Notes that's will be required for student.

If Student is already registered on Wordline Portal student can login and visit the the portal ,Registered student can send Reviews to Wordline portal and this reviews will approval by the admin ,Admin approve it and it will we display on the Wordline Portal home page.

Wordline Portal provide the information about that, if new trainer comes and start new course so it provide the information related to subject by click on subject details button.

After visiting the Wordline Portal student can logout and come back on Wordline main Home page the motive of this Wordline Portal is that student gets the online facility .

The work flow of Student module is divided in following part:

1. Student Registration:-

Registration for admission process is simplified by an online registration and tracking facility for course. Registration form give the help to register yourself and create account in Wordline Software institution. Three type of registration is provided by this website such as Admin registration, Student registration, Trainer registration. According to registered user give an authentication for privacy, access etc. After the registration user access a data from the Wordline Software website with the help of valid email id and password.

2. Login:-

After the registration Wordline website provide a user id and password. With the help of both of these user login in own user account.

3. View Profile:-

Registered student can login and view his/her profile on Wordline Portal with the help of internet on own machine.

4. Payment:-

Wordline Portal provided the facility to student for online payment by Debit & Credit card payment ,using internet banking and paytm.

5. Send Review:-

If student want to send Review so student can send his/her review and give his/her suggestion.

6. Notes Download:-

Wordline Portal Provides the online Notes download facility on daily bases classes. Student can view and download notes from portal.

7. Software Download:-

Wordline Portal Provides the facility to student for download required software by student from portal.

8. Enquiry:-

If student wants to information about new course and other information from admin ,so student can fill enquiry form and submit it. and student will received email for enquiry.

9. View Subject Details(Syllabus):-

Student want to see information about any subject so click on view subject button and can see the subject name, faculty name, course duration and syllabus.

10. Student Chat:-

Student can chat with all registered student of Wordline Portal and share or get information to all student with the help of Wordline chat system.

11. Logout:-

This is the final step of Wordline Portal after visiting Wordline Portal student can sign-out.

Create all basic information of class, course and projects of the institute, so that software can blend in with the present structure of your institute. On entering all required basic information of subjects, software easily gets synchronized to present data system of institute.

Advantages:

Student Management system is extremely important online Student Management system which has many advantages to your institute.

- Manage multiple department from a single computer.
- Total computerized system.
- Effective use of time.
- Charges are one time only.
- Cost Effective.
- Anywhere, anytime, Availability? Internet or Intranet with Automatic Synchronization.

The work flow of Student module is divided in following part

2.4 OBJECTIVES:

Objectives mean the various usages of website. By clarifying the website objectives one can be much clearer about the processes he/she has to perform. The objectives of our proposed system are:

- **Record :-** Keep records of all Students, Trainer, Faculty.
- **Quick & Accurate :-** Generates quick and accurate Result & information of each and every user.

- **Auto User id :-** Automatic Generate user id for each every Student as well faculty as well as trainer for all users.

- **Transparency :-** Student can view own profile and faculty details like name, experience, designation etc . and Trainer also can view own profile and all student details.
- **Control :-** Admin is able to apply updates , deletion and other operations. And control the other users such as student, trainer and faculties.

- **Easy and Efficient :-** Save the time and make the work easy for online user.

- **Information Provider :-** Provide a class details and subject details for every user. Also provide the online lectures, videos and enquiry form etc.

- **Management :-** Maintains the whole information about Wordline institution. And mostly control hold by the admin.

- **Security and Privacy :-** Wordline website provide the user id and password for every user such as student, trainer, faculty for security purpose and also provide the facility like send mail for recover password.

- **Remove Unwanted Data :-** The Website can allow the administrator to select the unnecessary information and delete them from the database. Here administrators have total control on Site; he can delete or edit information.

- **Time Saving :-** It will easily used and the time consuming is decreased.
- Effective use of time.
- Charges are one time only.
- Cost Effective.
- Anywhere, anytime, Availability? Internet or Intranet with Automatic Synchronization.
- Highly customizable according to your requirements.

2.5 PURPOSE OF PROJECT :

Now these days websites or portal play very important role in any formal organization, because computer works faster and accurate than human. The purpose of developing the Wordline **website** is that to make easy to management to store a large number of data/reports into the server. So the every registered user or visitor visit the website. It is difficult for any management to store the large number of data manually or in papers. In that case when any user wants to take information it is very difficult for management to provide information immediately. It is very time consuming process. But by using website it takes only few minutes/seconds.

Some purpose of Wordline website:-

- **Data Entry**

  Entering the correct and reliable data to the proposed website is the most important factor. The proposed system will facilitate the user with user-friendly screen, which will help the users to enter the correct data to proposed system easily. Different checks have been applied in the program for the validity of data so that wrong information cannot be entered into the server easily.

- **Updating**

  Mistake in the entry process are possible to occur. These mistakes needed to be corrected at the right time so that the data remain correct. Any mistake during the entry process can be corrected through this option.

- **Deletion**

  We can easily delete a particular record by requesting through entering the identity number or name of an item. The specified record is deleted from the database, which is not required anymore. This rarely occurs because most of the record are stored permanently, which may be referenced in later time.

- **Data Retrieval**

  The main purpose of data retrieval is to describe and explain ways and methods by means of which we get the required information from the system. The most imported operation in a website is the utilization or retrieval of the stored data. Different programs have been developed for this purpose. In these programs different queries are developed. These queries provide different facilities to the users. For example, if a user wants to retrieve the data of a particular product then he will be given different option for the searching criteria such either through Category or name for both Imported as well as local Supplies. The Wordline **website** will provide all the information about the specified criteria similarly; a user will be given choice to print the resulted output.

2.6 SCOPE :

The scope of the **Wordline website** includes the following functionality.

- ## Registration

  Manage all data and business processes associated with registration and its constituencies: prospects, applicants, organizations, parents, staff, and alumni volunteers. In addition to an efficient and effective means to manage constituency data, the system will provide a portal for prospects to update their information functionality for recruiters, a portal for applicants to see if their application materials have been received, and online application reading through a document and imaging management solution.

- ## Course Management

  Add, approve, and maintain course data, including prerequisites and co-requisites, distribution and division designations, titles, descriptions, cross-listings and registration id exclusions. Moving forward, track course offerings by academic semester and extract the data required to generate the College Catalogue.

- ## Registration

  Manage a registration calendar for various constituencies. Provide online registration for students, an automated approval process for advisors and course instructors, and a priority-based system for placing students into courses. Provide online capability for adding and dropping courses at the beginning of each semester.

- **Student and Faculty Records Management**

  Maintain students' and faculty biographical, status, and academic information in a secure, accessible system.

- **Transfer Articulation and Equivalency Determination**

  Maintain transfer credits, AP/IB scores and credits, SAT scores, and placement recommendations for students. Provide access to this information for individual students, faculty, and staff, where appropriate.

- **Student, Advisor, Faculty, and Staff portal tools**

  Provide online tools for managing biographical information, submitting administrative requests, viewing and/or updating electronic notes and grades, and completing academic planning.

- **Data Conversion**

  Convert 20 years of student and faculty academic history from the current system, James. All applicant records and seven years of prospect data from Recruitment Plus, Admissions' current system, will be loaded.

- **Reporting**

  Run ad hoc queries and standard reports, and build customized reports, using a comprehensive, yet easy-to-use reporting engine.

- **General**

  Leverage the workflow product, electronic notes, and document and image management to become a more paperless campus.

2.7 SOFTWARE QUALITY ATTRIBUTE :

- **Correctness:** Our proposed system will fulfil all the requirement and objectives of the user. User will find correct result that who wants.
- **Efficiency:** The data retrieval and storage of data will be made efficient, for instance in previous system it took a considerable amount of time to retrieve information from the huge registers.
- **Flexibility:** The system will be capable of making changes end enhancements in accordance with the future needs of the managements.

- **Security:** Only authorized people can make the changing in the database. We will provide the login for the user.

- **Maintainability:** If any error occurred in the system then it will easily maintain.

- **Reliability:** Our purposed system will much reliable as compare to manual.

- **Reusability:** Our software is reusable for any other institute with some miner changing.

CHAPTER-3

Object Comparison

- Object Comparison is a module in the Wordline.
- This module compares all the objects present in the Wordline, like: Institutions, Instructors, Students, Course Structure, etc.

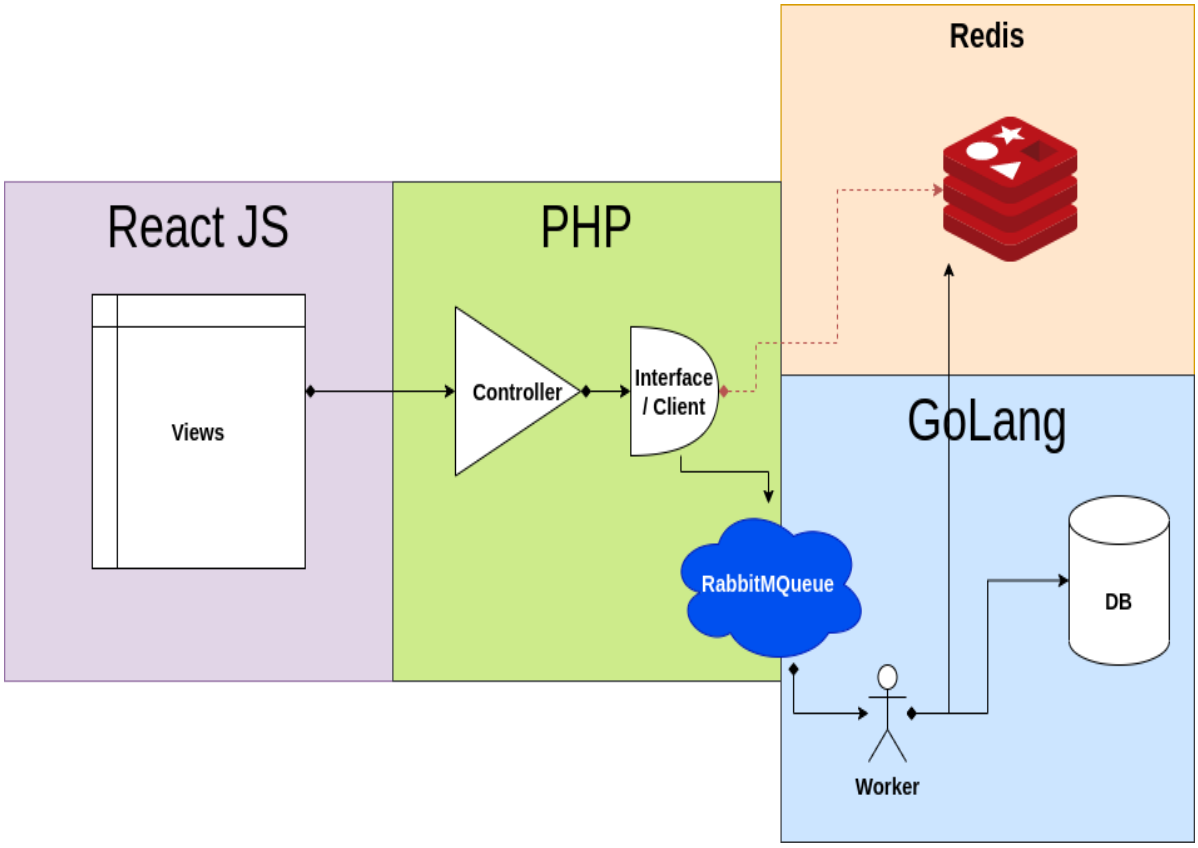
3.1 Functionality:

- Object Comparison allow students to select best option by comparing Institutes, Course Structures and Teachers .
- Object Comparison allows Institutions and teachers to track performance of Studenrs and track the progress.
- Lists Trending Course Structures.
- Lists Top Performing Institutes.
- Lists Best Teachers and Instructures.
- Student can Track their Performance and compare with their class or locallity.

3.2 Process

- Views requests the data from the Comparison Clients through Ajax call
- Comparison client and controllers get the request and validate the request.
- Comparion client process the request by looking up data into redis caches. If data is present in the cache then client response with the data.
- If data is not found in the cache, client response with the error message to the view and communicate with the worker through RabbitMQ.
- Worker get the message of client and start working on processing the request of client
- Worker runs complicate queries and access the data from the database.
- Worker generates Caches into redis.

3.3 Flow Of Project



3.4 Components:

3.4.1 Views

- There are three Different views in this project:
    1. Comparison View
    2. Top Chart View / Ranking View
    3. Specification on Object's Profile
- Views are developed using React JS, HTML, CSS, JavaScript, Bootstrap, JQuery. Ajax

3.4.2 Comparison Client

- Comparison Client consists of Controllers and Client Interface.
- Controllers get the request from views, validate it and pass it to the Client Interface.
- Client Interface is a class containing functionalities that are responsible of managing whole module.
- Client access the data from Redis cache and response back If data is present.
- Otherwise leaves a message into RabbitMQ.
- Comparison Client is developed into PHP and its Framework Laravel.

3.4.3 Caching (Redis)

- Why Needed Caching in this Project:
  - To avoid repeated computation
  - To reduce database load
- Redis is used to implement caching in this project.
- Redis:
  - Redis is an open source, in memory data structure.
  - Redis can be used as a database or a cache and message broker
  - Redis is a NoSQL Key/Value store
- Redis supports different kinds of abstract data structures:
  - Strings
  - Bitmaps
  - Lists
  - Hyper Logs
  - Sets
  - Geospatial Indexes
  - Sorted Sets
  - Hashes

3.4.4 RabbitMQ

- Communication Between Clients and Worker using RabbitMQ.
- RabbitMQ is an open-source message-broker software that originally implemented the Advanced Message Queuing Protocol
- RabbitMQ is a message broker: it accepts and forwards messages..
- In this Project
    - Comparisons Client is the Producers. They contains some functionalities that put message into queue to ask for cache generation and modification.
    - Worker is the Consumer. Worker receives the message and process the message by generating the cache that client ask for.

3.4.5 Worker

- Back-end application for Data Comparison.
- Set of functions that will be used to run complex queries to extract data from database and maintain cache based on that data.
- Types of functions Worker contains:
    - Query Runners
    - Cache Maintainers
- Go Language is used to develop the Worker.
- Reason for Using Go:
    - Static typing and run-time efficiency (like C),
    - readability and usability (like Python or JavaScript),
    - high-performance networking and multiprocessing.

CHAPTER - 4

SYSTEM DEVELOPMENT LIFE CYCLE

DevOps Lifecycle

DevOps defines an agile relationship between operations and Development. It is a process that is practiced by the development team and operational engineers together from beginning to the final stage of the product.

Learning DevOps is not complete without understanding the DevOps lifecycle phases. The DevOps lifecycle includes seven phases as given below:

4.1 Continuous Development

This phase involves the planning and coding of the software. The vision of the project is decided during the planning phase. And the developers begin developing the code for the application. There are no DevOps tools that are required for planning, but there are several tools for maintaining the code.

4.2 Continuous Integration

This stage is the heart of the entire DevOps lifecycle. It is a software development practice in which the developers require to commit changes to the source code more frequently. This may be on a daily or weekly basis. Then every commit is built, and this allows early detection of problems if they are present. Building code is not only involved compilation, but it also includes **unit testing, integration testing, code review**, and **packaging**.

The code supporting new functionality is continuously integrated with the existing code. Therefore, there is continuous development of software. The updated code needs to be integrated continuously and smoothly with the systems to reflect changes to the end-users.

Jenkins is a popular tool used in this phase. Whenever there is a change in the Git repository, then Jenkins fetches the updated code and prepares a build of that code, which is an executable file in the form of war or jar. Then this build is forwarded to the test server or the production server.

4.3 Continuous Testing

This phase, where the developed software is continuously testing for bugs. For constant testing, automation testing tools such as **TestNG, JUnit, Selenium**, etc are used. These tools allow QAs to test multiple code-bases thoroughly in parallel to ensure that there is no flaw in

the functionality. In this phase, **Docker** Containers can be used for simulating the test environment.

Selenium does the automation testing, and TestNG generates the reports. This entire testing phase can automate with the help of a Continuous Integration tool called **Jenkins**.

Automation testing saves a lot of time and effort for executing the tests instead of doing this manually. Apart from that, report generation is a big plus. The task of evaluating the test cases that failed in a test suite gets simpler. Also, we can schedule the execution of the test cases at predefined times. After testing, the code is continuously integrated with the existing code.

4.4 Continuous Monitoring

Monitoring is a phase that involves all the operational factors of the entire DevOps process, where important information about the use of the software is recorded and carefully processed to find out trends and identify problem areas. Usually, the monitoring is integrated within the operational capabilities of the software application.

It may occur in the form of documentation files or maybe produce large-scale data about the application parameters when it is in a continuous use position. The system errors such as server not reachable, low memory, etc are resolved in this phase. It maintains the security and availability of the service.

4.5 Continuous Feedback

The application development is consistently improved by analyzing the results from the operations of the software. This is carried out by placing the critical phase of constant feedback between the operations and the development of the next version of the current software application.

The continuity is the essential factor in the DevOps as it removes the unnecessary steps which are required to take a software application from development, using it to find out its issues and then producing a better version. It kills the efficiency that may be possible with the app and reduce the number of interested customers.

4.6 Continuous Deployment

In this phase, the code is deployed to the production servers. Also, it is essential to ensure that the code is correctly used on all the servers.

The new code is deployed continuously, and configuration management tools play an essential role in executing tasks frequently and quickly. Here are some popular tools which are used in this phase, such as **Chef, Puppet, Ansible**, and **SaltStack**.

Containerization tools are also playing an essential role in the deployment phase. **Vagrant** and **Docker** are popular tools that are used for this purpose. These tools help to produce consistency across development, staging, testing, and production environment. They also help in scaling up and scaling down instances softly.

Containerization tools help to maintain consistency across the environments where the application is tested, developed, and deployed. There is no chance of errors or failure in the production environment as they package and replicate the same dependencies and packages used in the testing, development, and staging environment. It makes the application easy to run on different computers.

4.7 Continuous Operations

All DevOps operations are based on the continuity with complete automation of the release process and allow the organization to accelerate the overall time to market continuingly.

It is clear from the discussion that continuity is the critical factor in the DevOps in removing steps that often distract the development, take it longer to detect issues and produce a better version of the product after several months. With DevOps, we can make any software product more efficient and increase the overall count of interested customers in your product.

CHAPTER-5

FEASIBILITY STUDY

5.1 PROBLEM DEFINATION:

To create or develop this Wordline PORTAL we have to study the prior system, Analysis difficult problem faced by the user of that system. System Analysis therefore understands such problems and propose that Wordline PORTAL in which the above problems are rectified.

5.2 FEASIBILITY STUDY

Feasibility study is conducted once the problem is clearly understood. Feasibility study is a high level capsule version of the entire system analysis and design process. The objective is to determine quickly at a minimum expense how to solve a problem. The purpose of feasibility is not to solve the problem but to determine if the problem is worth solving.

As the name implies, a *feasibility study* is used to determine the viability of an idea. The objective of such a study is to ensure a project is legally and technically feasible and economically justifiable. It tells us whether a project is worth the investment. Feasibility studies are useful to businesses in many ways. Some of the reasons organizations conduct feasibility studies are as follows:

- Not every project is doable.
- Not every project should be taken up. This will engage otherwise useful resources and block their use on other tasks.
- Not every project makes effective use of the resources of an organization.

In simple terms, a feasibility study involves taking a judgment call on whether a project is doable. The two criteria to judge feasibility are *cost required* and *value to be delivered*. A well-designed study should offer a historical background of the business or project, a description of the product or service, accounting statements, details of operations and management, marketing research and policies, financial data, legal requirements and tax obligations. Generally, such studies precede technical development and project implementation.

A feasibility study evaluates the project's potential for success; therefore, perceived objectivity is an important factor in the credibility of the study for potential investors and lending institutions.

1. Technical Feasibility

2. Economical Feasibility

3. Operational Feasibility.

1. Technical Feasibility: -

The project entitles "Project Monitoring System" is technically feasibility because of the below mentioned feature. The project was developed in Laraval PHP. It provides the high level of reliability, availability and compatibility. All these make Java an appropriate language for this project. Thus the existing software Java is a powerful language.

2. Economical Feasibility: -

The computerized system will help in automate the selection leading the profits and details of the organization. With this software, the machine and manpower utilization are expected to go up by 80-90% approximately. The costs incurred of not creating the system are set to be great, because precious time can be wanted by manually.

3. Operational Feasibility:-

In this project, the management will know the details of each project where he may be presented and the data will be maintained as decentralized and if any inquires for that particular contract can be known as per their requirements and necessaries.

4. Legal Feasibility :–

investigates if the proposed system conflicts with legal requirements like data protection acts or social media laws.

5. Scheduling Feasibility:-

It is the most important for project success. A project will fail if not completed on time. In scheduling feasibility, we estimate how much time the system will take to complete, and with our technical skills we need to estimate the period to complete the project using various methods of estimation.

5.3 Benefits of Conducting a Feasibility Study :

Conducting a feasibility study is always beneficial to the project as it gives you and other stakeholders a clear picture of your idea. Below are the key benefits of conducting a feasibility study:

- Gives project teams more focus and provides an alternative outline.
- Narrows the business alternatives.
- Identifies a valid reason to undertake the project.
- Enhances the success rate by evaluating multiple parameters.
- Aids decision-making on the project.

Apart from the approaches to feasibility study listed above, some projects also require for other constraints to be analyzed -

- **Internal Project Constraints:** Technical, Technology, Budget, Resource, etc.
- **Internal Corporate Constraints:** Financial, Marketing, Export, etc.
- **External Constraints:** Logistics, Environment, Laws and Regulations, etc.

We hope this helped you understand the concept of feasibility study better. To learn more about similar project management concepts, explore our library of Project Management articles. Happy reading!

CHAPTER-6

TECHNOLOGY USED

6.1 Front End:

6.1.1 HTML

The Hypertext Markup Language, or HTML is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript.

Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

6.1.2 CSS

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language such as HTML. CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript.

CSS is designed to enable the separation of presentation and content, including layout, colors, and fonts. This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple web pages to share formatting by specifying the relevant CSS in a separate .css file which reduces complexity and repetition in the structural content as well as enabling the .css file to be cached to improve the page load speed between the pages that share the file and its formatting.

6.1.3 Bootstrap

Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains CSS- and (optionally) JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components.

Bootstrap is a HTML, CSS & JS Library that focuses on simplifying the development of informative web pages (as opposed to web apps). The primary purpose of adding it to a web project is to apply Bootstrap's choices of color, size, font and layout to that project. As such, the

primary factor is whether the developers in charge find those choices to their liking. Once added to a project, Bootstrap provides basic style definitions for all HTML elements. The result is a uniform appearance for prose, tables and form elements across web browsers. In addition, developers can take advantage of CSS classes defined in Bootstrap to further customize the appearance of their contents. For example, Bootstrap has provisioned for light- and dark-colored tables, page headings, more prominent pull quotes, and text with a highlight.

6.1.4 JavaScript

JavaScript (/ˈdʒɑːvəˌskrɪpt/), often abbreviated as JS, is a programming language that conforms to the ECMAScript specification. JavaScript is high-level, often just-in-time compiled, and multi-paradigm. It has curly-bracket syntax, dynamic typing, prototype-based object-orientation, and first-class functions.

Alongside HTML and CSS, JavaScript is one of the core technologies of the World Wide Web. Over 97% of websites use it client-side for web page behavior, often incorporating third-party libraries. All major web browsers have a dedicated JavaScript engine to execute the code on the user's device.

As a multi-paradigm language, JavaScript supports event-driven, functional, and imperative programming styles. It has application programming interfaces (APIs) for working with text, dates, regular expressions, standard data structures, and the Document Object Model (DOM).

6.1.5 jQuery

jQuery is a JavaScript library designed to simplify HTML DOM tree traversal and manipulation, as well as event handling, CSS animation, and Ajax. It is free, open-source software using the permissive MIT License. As of May 2019, jQuery is used by 73% of the 10 million most popular websites. Web analysis indicates that it is the most widely deployed JavaScript library by a large margin, having at least 3 to 4 times more usage than any other JavaScript library.

jQuery's syntax is designed to make it easier to navigate a document, select DOM elements, create animations, handle events, and develop Ajax applications. jQuery also provides capabilities for developers to create plug-ins on top of the JavaScript library. This enables developers to create abstractions for low-level interaction and animation, advanced effects and high-level, themeable widgets. The modular approach to the jQuery library allows the creation of powerful dynamic web pages and Web applications.

6.1.6 React js

React (also known as React.js or ReactJS) is a free and open-source front-end JavaScript library for building user interfaces or UI components. It is maintained by Facebook and a community of individual developers and companies. React can be used as a base in the development of single-page or mobile applications. However, React is only concerned with state management and rendering that state to the DOM, so creating React applications usually requires the use of additional libraries for routing, as well as certain client-side functionality.

6.2 Back End :

6.2.1 PHP

PHP is a general-purpose scripting language geared towards web development. It was originally created by Danish-Canadian programmer Rasmus Lerdorf in 1994. The PHP reference implementation is now produced by The PHP Group. PHP originally stood for Personal Home Page, but it now stands for the recursive initialism PHP: Hypertext Preprocessor.

PHP code is usually processed on a web server by a PHP interpreter implemented as a module, a daemon or as a Common Gateway Interface (CGI) executable. On a web server, the result of the interpreted and executed PHP code – which may be any type of data, such as generated HTML or binary image data – would form the whole or part of an HTTP response. Various web template systems, web content management systems, and web frameworks exist which can be employed to orchestrate or facilitate the generation of that response. Additionally, PHP can be used for many programming tasks outside of the web context, such as standalone graphical applications and robotic drone control. PHP code can also be directly executed from the command line.

6.2.2 Go Language

Go is a statically typed, compiled programming language designed at Google by Robert Griesemer, Rob Pike, and Ken Thompson. Go is syntactically similar to C, but with memory safety, garbage collection, structural typing, and CSP-style concurrency. The language is often referred to as Golang because of its domain name, golang.org, but the proper name is Go.

The Go programming language is an open source project to make programmers more productive.

Go is expressive, concise, clean, and efficient. Its concurrency mechanisms make it easy to write programs that get the most out of multicore and networked machines, while its novel type system enables flexible and modular program construction. Go compiles quickly to machine code yet

has the convenience of garbage collection and the power of run-time reflection. It's a fast, statically typed, compiled language that feels like a dynamically typed, interpreted language.

What excluding in Go which is present in other languages?

Go attempts to reduce the amount of typing in both senses of the word. Throughout its design, developers tried to reduce clutter and complexity.
There are no forward declarations and no header files; everything is declared exactly once.
Stuttering is reduced by simple type derivation using the := declare-and-initialize construct.
There is no type hierarchy: types just are, they don’t have to announce their relationships.

6.2.3 Laravel

Laravel is an open-source PHP framework, which is robust and easy to understand. It follows a model-view-controller design pattern. Laravel reuses the existing components of different frameworks which helps in creating a web application. The web application thus designed is more structured and pragmatic.

Laravel offers a rich set of functionalities which incorporates the basic features of PHP frameworks like CodeIgniter, Yii and other programming languages like Ruby on Rails. Laravel has a very rich set of features which will boost the speed of web development.

If you are familiar with Core PHP and Advanced PHP, Laravel will make your task easier. It saves a lot time if you are planning to develop a website from scratch. Moreover, a website built in Laravel is secure and prevents several web attacks.

Advantages of Laravel
Laravel offers you the following advantages, when you are designing a web application based on it −

The web application becomes more scalable, owing to the Laravel framework.

Considerable time is saved in designing the web application, since Laravel reuses the components from other framework in developing web application.

It includes namespaces and interfaces, thus helps to organize and manage resources.

6.2.4 JSON

JSON (JavaScript Object Notation, pronounced /ˈdʒeɪsən/; also /ˈdʒeɪˌsɒn/) is an open standard file format and data interchange format that uses human-readable text to store and transmit data objects consisting of attribute–value pairs and arrays (or other serializable values). It is a common data format with a diverse range of functionality in data interchange including communication of web applications with servers.

JSON is a language-independent data format. It was derived from JavaScript, but many modern programming languages include code to generate and parse JSON-format data. JSON filenames use the extension .json.

6.2.5 AJAX

Ajax (also AJAX /ˈeɪdʒæks/; short for "Asynchronous JavaScript and XML") is a set of web development techniques using many web technologies on the client-side to create asynchronous web applications. With Ajax, web applications can send and retrieve data from a server asynchronously (in the background) without interfering with the display and behaviour of the existing page. By decoupling the data interchange layer from the presentation layer, Ajax allows web pages and, by extension, web applications, to change content dynamically without the need to reload the entire page. In practice, modern implementations commonly utilize JSON instead of XML.

Ajax is not a single technology, but rather a group of technologies. HTML and CSS can be used in combination to mark up and style information. The webpage can then be modified by JavaScript to dynamically display—and allow the user to interact with—the new information. The built-in XMLHttpRequest object, or since 2017 the new fetch function within JavaScript, is commonly used to execute Ajax on webpages, allowing websites to load content onto the screen without refreshing the page. Ajax is not a new technology, or a different language, just existing technologies used in new ways.

6.2.6 RabbitMQ

RabbitMQ is an open-source message-broker software (sometimes called message-oriented middleware) that originally implemented the Advanced Message Queuing Protocol (AMQP) and has since been extended with a plug-in architecture to support Streaming Text Oriented Messaging Protocol (STOMP), MQ Telemetry Transport (MQTT), and other protocols.

With tens of thousands of users, RabbitMQ is one of the most popular open source message brokers. From T-Mobile to Runtastic, RabbitMQ is used worldwide at small startups and large enterprises.

RabbitMQ is lightweight and easy to deploy on premises and in the cloud. It supports multiple messaging protocols. RabbitMQ can be deployed in distributed and federated configurations to meet high-scale, high-availability requirements.

RabbitMQ runs on many operating systems and cloud environments, and provides a wide range of developer tools for most popular languages.

6.2.7 Redis

Redis is an open source (BSD licensed), in-memory data structure store, used as a database, cache, and message broker. Redis provides data structures such as strings, hashes, lists, sets, sorted sets with range queries, bitmaps, hyperloglogs, geospatial indexes, and streams. Redis has built-in replication, Lua scripting, LRU eviction, transactions, and different levels of on-disk persistence, and provides high availability via Redis Sentinel and automatic partitioning with Redis Cluster.

You can run atomic operations on these types, like appending to a string; incrementing the value in a hash; pushing an element to a list; computing set intersection, union and difference; or getting the member with highest ranking in a sorted set.

To achieve top performance, Redis works with an in-memory dataset. Depending on your use case, you can persist your data either by periodically dumping the dataset to disk or by appending each command to a disk-based log. You can also disable persistence if you just need a feature-rich, networked, in-memory cache.

Redis also supports asynchronous replication, with very fast non-blocking first synchronization, auto-reconnection with partial resynchronization on net split.

6.2.8 MySQL

MySQL is free and open-source software under the terms of the GNU General Public License, and is also available under a variety of proprietary licenses. MySQL was owned and sponsored by the Swedish company MySQL AB, which was bought by Sun Microsystems (now Oracle Corporation). In 2010, when Oracle acquired Sun, Widenius forked the open-source MySQL project to create MariaDB.

MySQL has stand-alone clients that allow users to interact directly with a MySQL database using SQL, but more often, MySQL is used with other programs to implement applications that need relational database capability. MySQL is a component of the LAMP web application

software stack (and others), which is an acronym for Linux, Apache, MySQL, Perl/PHP/Python. MySQL is used by many database-driven web applications, including Drupal, Joomla, phpBB, and WordPress. MySQL is also used by many popular websites, including Facebook, Flickr, MediaWiki, Twitter, and YouTube.

6.3 Development Tools:

6.3.1 Git

Git (/gɪt/) is software for tracking changes in any set of files, usually used for coordinating work among programmers collaboratively developing source code during software development. Its goals include speed, data integrity, and support for distributed, non-linear workflows (thousands of parallel branches running on different systems).

Git was created by Linus Torvalds in 2005 for development of the Linux kernel, with other kernel developers contributing to its initial development. Since 2005, Junio Hamano has been the core maintainer. As with most other distributed version control systems, and unlike most client–server systems, every Git directory on every computer is a full-fledged repository with complete history and full version-tracking abilities, independent of network access or a central server. Git is free and open-source software distributed under GNU General Public License Version 2.

6.3.2 GitLab

GitLab is a web-based DevOps lifecycle tool that provides a Git repository manager providing wiki, issue-tracking and continuous integration and deployment pipeline features, using an open-source license, developed by GitLab Inc. The software was created by Ukrainian developers Dmytro Zaporozhets and Valery Sizov.

The code was originally written in Ruby, with some parts later rewritten in Go, initially as a source code management solution to collaborate within a team on software development. It later evolved to an integrated solution covering the software development life cycle, and then to the whole DevOps life cycle. The current technology stack includes Go, Ruby on Rails, and Vue.js.

It follows an open-core development model where the core functionality is released under an open-source (MIT) license while the additional functionality is under a proprietary license.

6.3.3 Docker

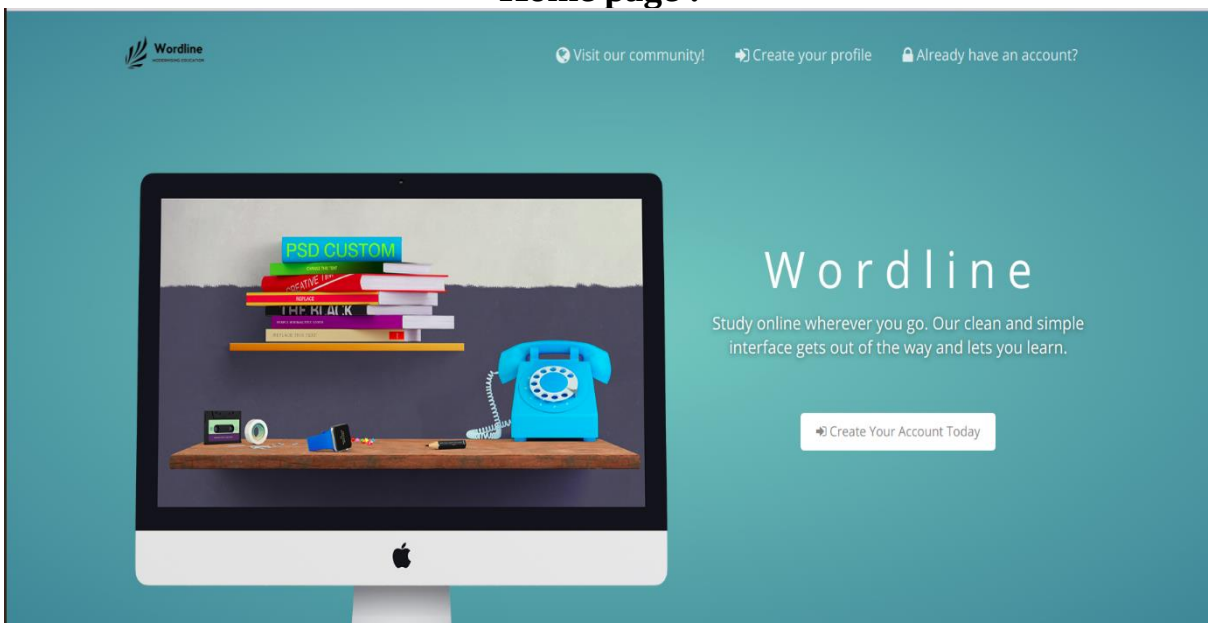
Docker is a set of platform as a service (PaaS) products that use OS-level virtualization to deliver software in packages called containers. Containers are isolated from one another and bundle their own software, libraries and configuration files; they can communicate with each other through well-defined channels. Because all of the containers share the services of a single operating system kernel, they use fewer resources than virtual machines.

The service has both free and premium tiers. The software that hosts the containers is called Docker Engine. It was first started in 2013 and is developed by Docker, Inc

CHAPTER-7

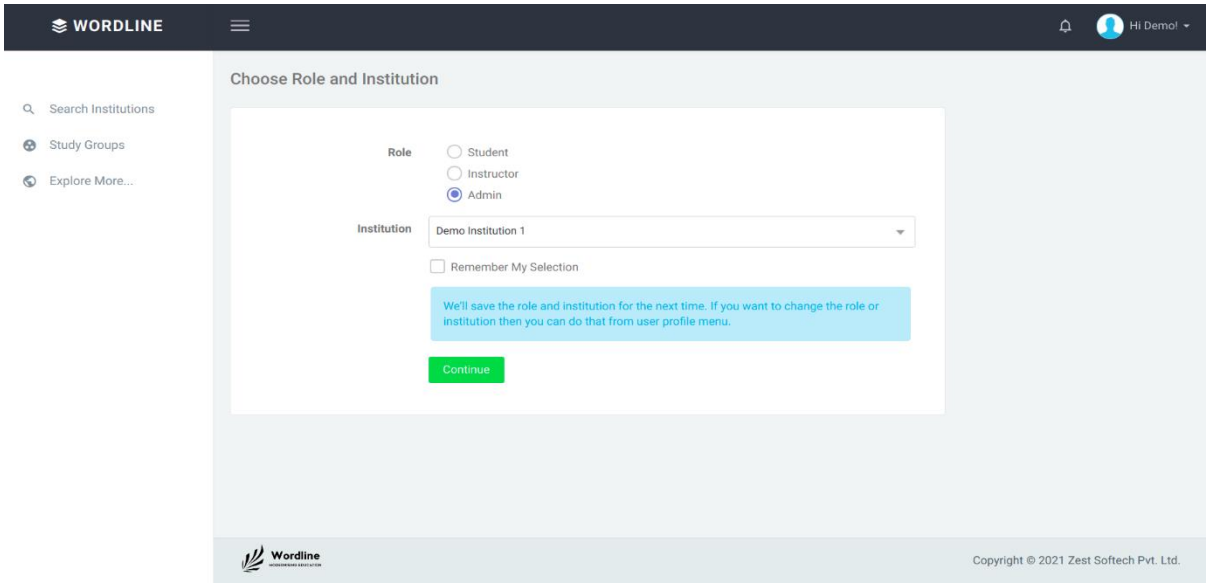
SNAPSHOTS

Home page :-

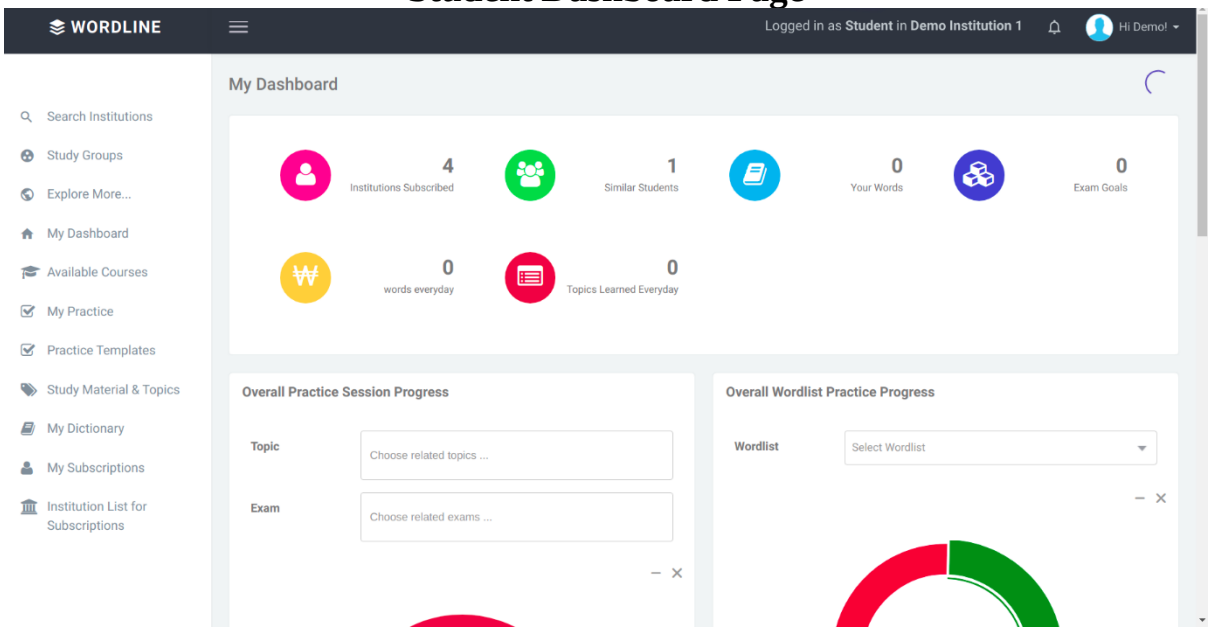


This is Home Page of Wordline website.

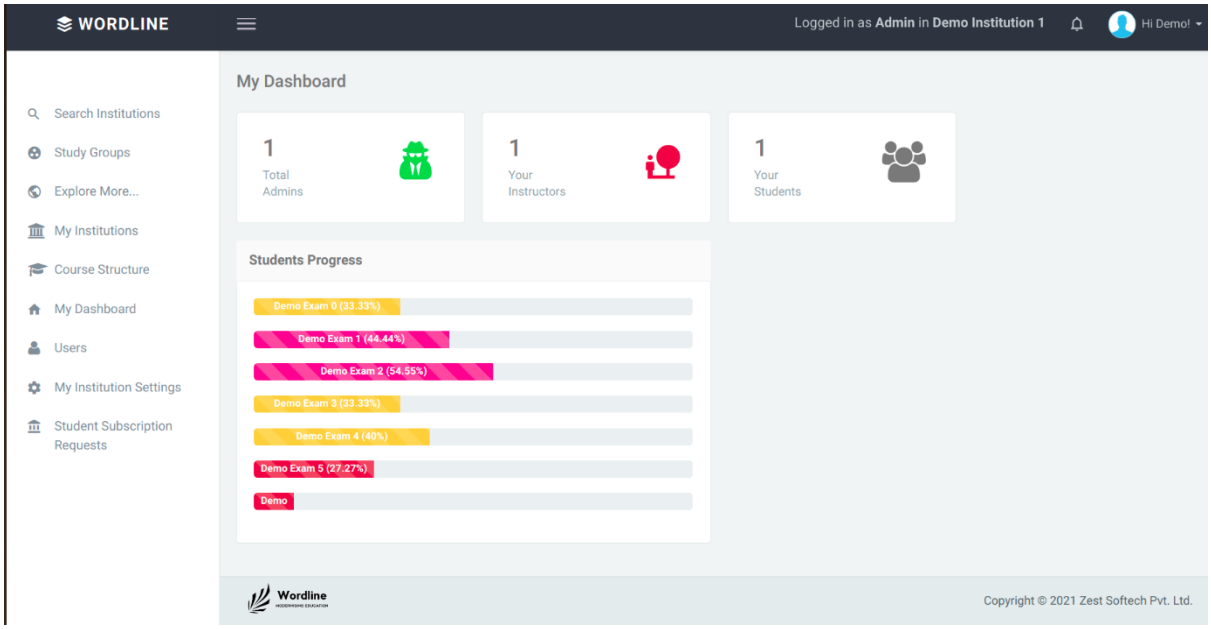
Choose Role Form



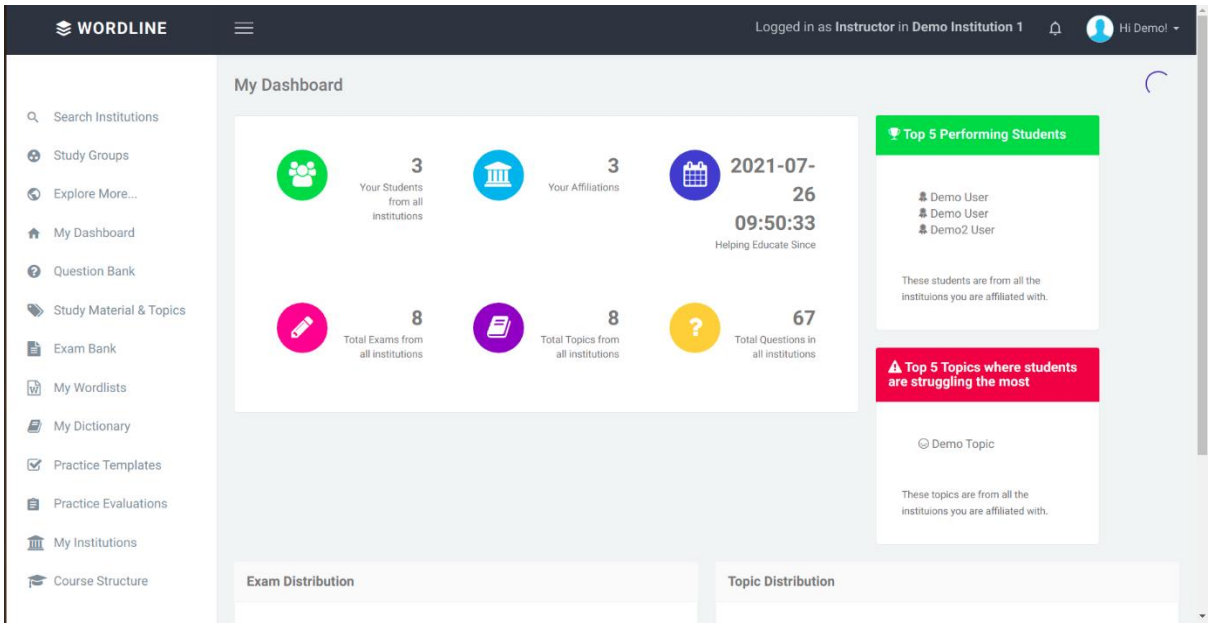
Student Dashboard Page



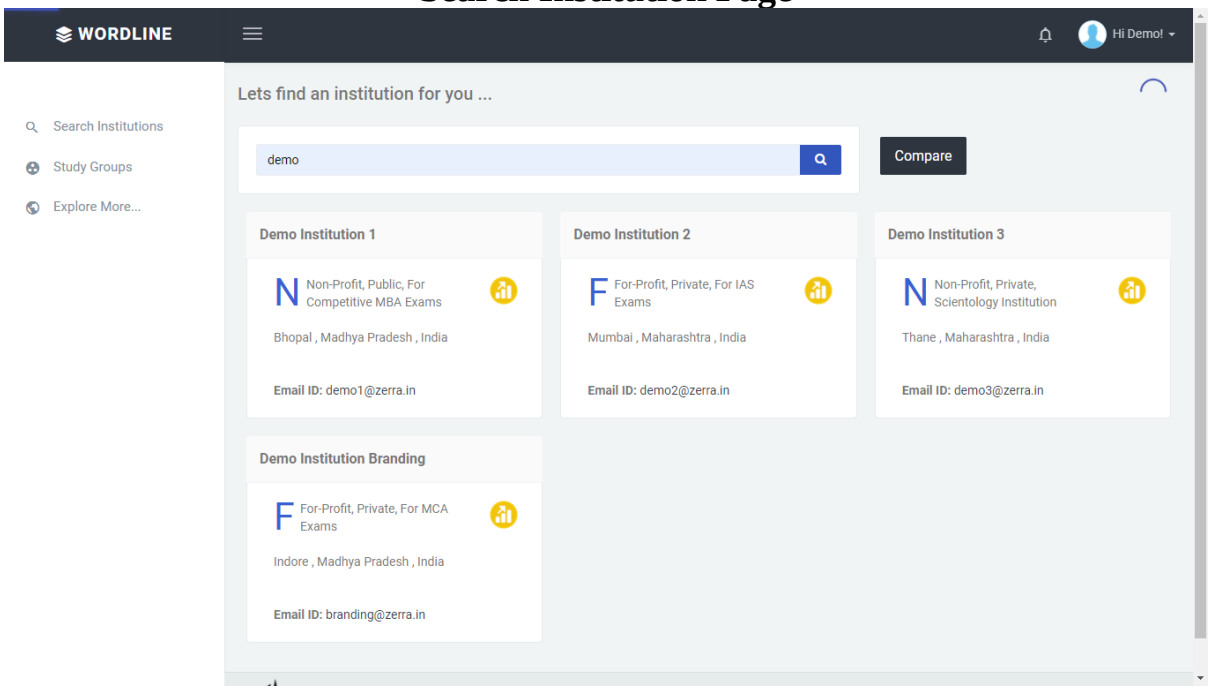
Admin Dashboard



Instructor Dashboard

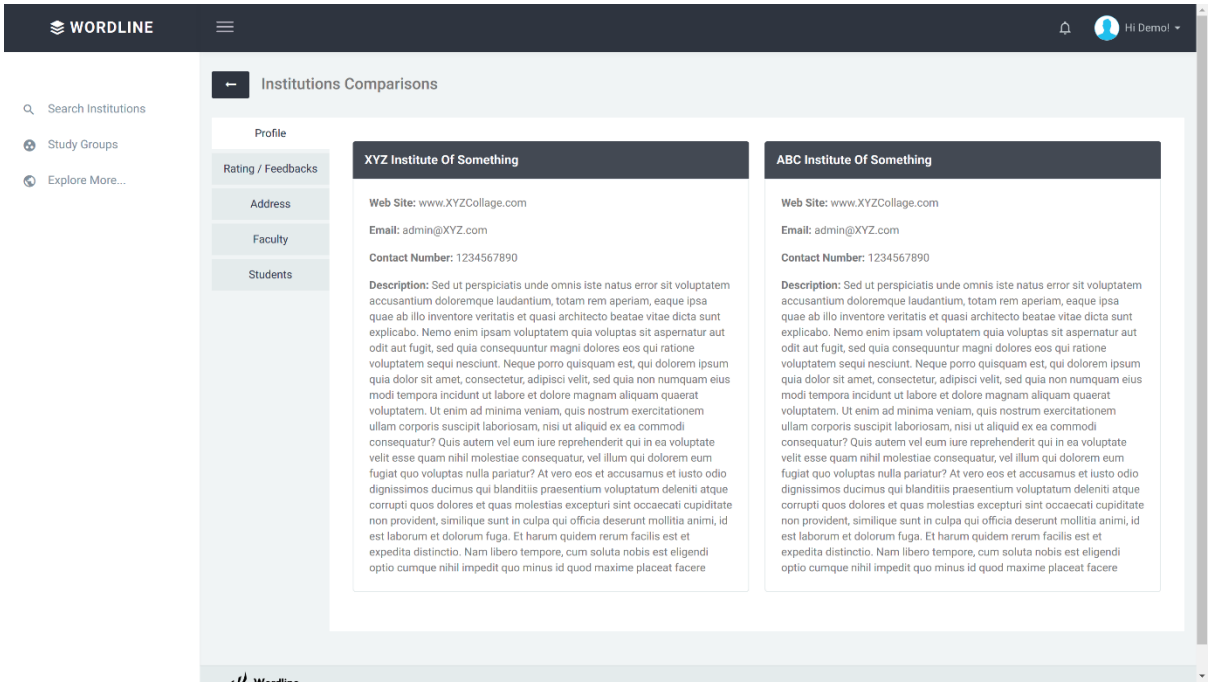


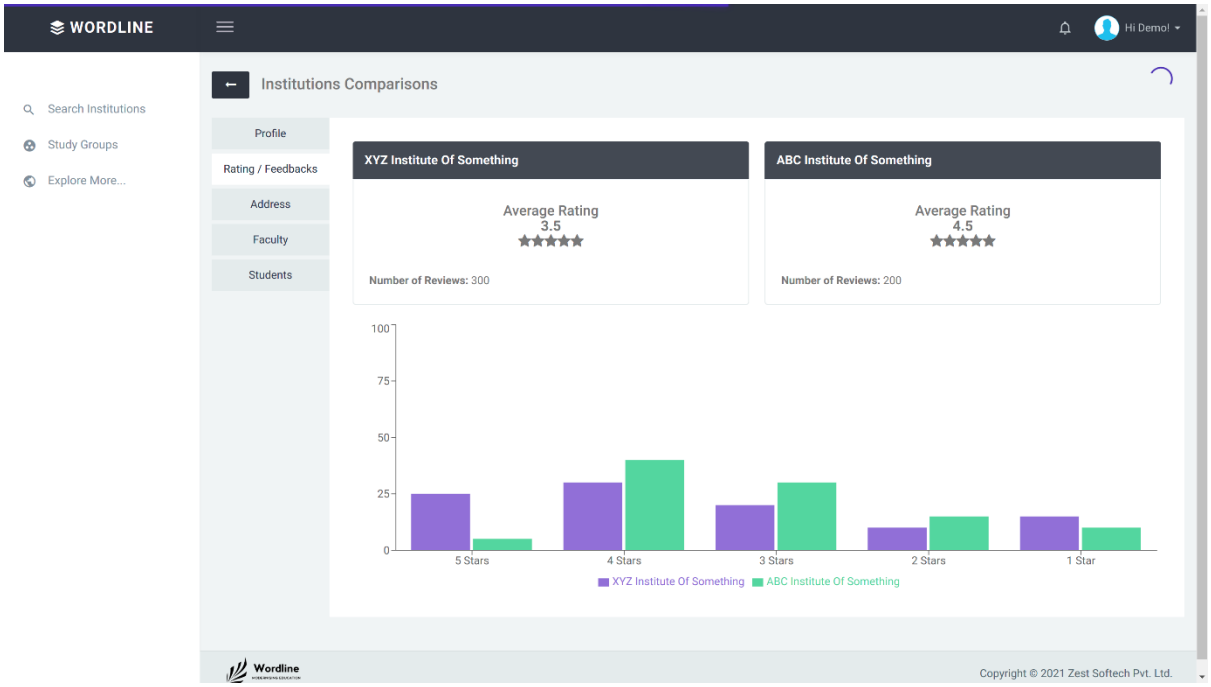
Search Institution Page

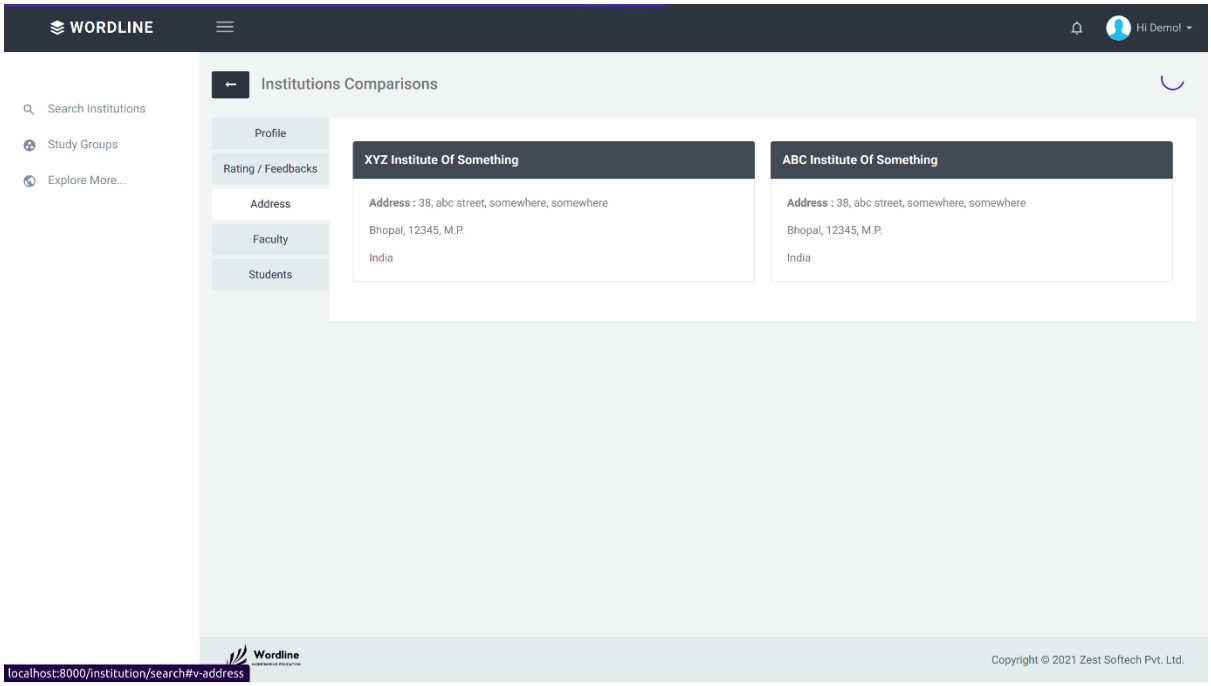


This Page search the institute in Wordline website, and also contain compare button that takes the user to the comparison view page.

Comparison Views






WORDLINE
Hi Demo!
Search Institutions
Study Groups
Explore More...
Institutions Comparisons
Profile
Rating / Feedbacks
Address
Faculty
Students
XYZ Institute Of Something
Address : 38, abc street, somewhere, somewhere
Bhopal, 12345, M.P.
India
ABC Institute Of Something
Address : 38, abc street, somewhere, somewhere
Bhopal, 12345, M.P.
India
Wordline
Copyright © 2021 Zest Softech Pvt. Ltd.
localhost:8000/institution/search#v-address

CHAPTER - 8

POST IMPLEMENTATION

POST IMPLEMENTATION:

The Post Implementation is conducted after completion of the project, but prior to making final improvements. Ideally, it should happen after the system has been in place long enough to allow for judgments to be made about how it will perform long-term. Its purpose is to evaluate how successfully the project objectives were met and how effective project management practices were. Document the results of the PIR in a close-out report called the post implementation.

Conducting a timely and thorough PIR will help identify lessons learned and previously unidentified shortfalls. These, in turn, will assist in making final improvements to the system being implemented. Elements of lessons learned will also assist in planning, managing and meeting the objectives of future projects. The checklist below is meant to be fairly comprehensive and can be pared down to suit your needs and the scale of the project.

After development of Wordline website we are check the entire project with every module such as student, faculty, admin and any other module and also check the every page of project. And in the time of checking project done implementation work if required.

For example if we are want to add video uploading feature in our module. Or updating any other feature or module so this process is known as post implementation.

POST IMPLEMENTATION WORK:

- Online Payment system
- Student chat Messenger
- Q R Code generation.

CHAPTER - 9

TESTING

9.1 TESTING:

The testing phase is an important part of software development. It is the process of finding errors and missing operations and also a complete verification to determine whether the objectives are met and the user requirements are satisfied.

- The process of executing a system with the intent of finding an error.
- Testing is defined as the process in which defects are identified, isolated, subjected for rectification and ensured that product is defect free in order to produce the quality product and hence customer satisfaction.
- Quality is defined as justification of the requirements
- Defect is nothing but deviation from the requirements
- Defect is nothing but bug.
- Testing --- The presence of bugs
  Testing can de
- demonstrate the presence of bugs, but not their absence
- Debugging and Testing are not the same thing!
- Testing is a systematic attempt to break a program or the AUT
- Debugging is the art or method of uncovering why the script /program did not execute properly.

9.1.1 Testing Objectives Includes:

- Testing is a process of executing a program with the intent of find error.
- A good test case is one that has a probability of finding an as yet undiscovered error.
- A successful test is one that uncovers an undiscovered error.

9.1.2 Testing Principles:

- All test should be traceable to end user requirements.
- Tests should be planned long before testing begins.
- Testing should begin on small scale and progress towards testing in large.
- Exhaustive testing is not possible.
- To be most effective testing should be conducted by a independent third party

9.1.3 Testing Strategies:

A strategy for software testing integrates software test cases into series of well planned steps that result in the successful construction of software. Software testing is broad topic for what is referred to as Verification and Validation.

9.1.4 Testing Types:

The first includes **Unit testing**, where in each module is tested to provide its correctness, validity and also determine any missing operations and to verify whether the objectives have been met. Errors are noted down and corrected immediately. Unit testing is the important and major part of the project. So errors are rectified easily in particular module and program clarity is increased. In this project entire system is divided into several modules and is developed individually. So unit testing is conducted to individual modules.

The second step includes **Integration testing**. It need not be the case, the software whose modules when run individually and showing perfect results, will also show perfect results when run as a whole. The individual modules are clipped under this major module and tested again and verified the results. This is due to poor interfacing, which may results in data being lost across an interface. A module can have inadvertent, adverse effect on any other or on the global data structures, causing serious problems.

The final step involves **Validation and testing** which determines which the software functions as the user expected. Here also some modifications were. In the completion of the project it is satisfied fully by the end user.

Security Testing:

Attempts to verify the protection mechanisms built into the system.

Performance Testing:

This method is designed to test runtime performance of software within the context of an integrated system.

CHAPTER-10

CONCLUSION

10.1 CONCLUSION

This thesis has attempted the improvement of the teaching-learning process in higher educational institutions by using knowledge management. The unique feature in this project is that it covers almost every part of an educational organization which is very important to improve the quality of education. In this work almost all the methods have been used to extract the knowledge from the contributors, who are related to the educational organizations. Implicit knowledge is the backbone of the knowledge portal; so, this knowledge has been managed very well in this portal. In conclusion, the author suggests that higher educational institutions or universities that put into practice, a knowledge portal in their organizations can get a more friendly knowledge community. A more informed knowledge community with a strong sense of skills may enhance its own success. This research is a starting attempt to analyze, evaluate and improve the performance of faculty members and students, to enhance the quality of higher education and the higher educational system The results discussed show that there is a commendable improvement in the knowledge management system, student performance improvement system and faculty performance, designed from the knowledge collected and stored in the knowledge portal. The higher educational institutions can use such systems to enhance their overall performance. Knowledge management systems in institutions can improve their policies, enhance their strategies, and improve the quality of the management system. A knowledge society is achievable once the Knowledge portal and knowledge management systems are implemented in all the higher educational institutions.

10.2 FUTURE RESEARCH

A number of directions can be followed as an extension of this research. Some challenges and open questions still to be explored in the research work are as follows: x Identifying new sources of implicit knowledge x New methods for extraction of knowledge x New methods to improve the performance of educational institutions

This work is not complete yet , everything that is made has some or the other things to be added to make it more better. it is still under proccess form companys priorities.

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